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Tapping the power of local knowledge: A local-global interactive perspective



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ABSTRACT

Existing theories of international business and strategy do not fully explain how local knowledge disadvantage faced by foreign investors can be mitigated. We conducted an in-depth qualitative study into four MNCs to investigate the micro-processes of how they generated value from their dispersed sources of local knowledge in China. The results suggest an interactive model: that MNCs employed management processes encompassing three strategically interconnected efforts—global knowledge penetration, local-global knowledge blending, and local-global knowledge integration. The model highlights the interplay between global and local knowledge and challenges extant research that solely focuses on the transfer of either home-based or local knowledge.

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1. Introduction

Local knowledge is generally defined as ‘knowledge that is specific to a host country’ (Lord & Ranft, 2000; p. 573). It has long been recognized that location-based disadvantage, and local knowledge disadvantage in particular, significantly hinders the performance of foreign investors in a host country (Elango, 2009; Hymer, 1976; Johanson & Vahlne, 1977; Makino & Delios, 1996; Zaheer, 1995). However, there is an inadequate understanding of how such liability can be mitigated (Denk, Kaufmann, & Roesch, 2012; Luo & Mezias, 2002; Tsang, 2002). This question is especially salient in transition economies where multinational corporations (MNCs) increasingly establish their production or presence but the level of the liability of foreignness is recognized to be higher than that in developed markets (Luo, Shenkar, & Nyaw, 2002; Peng, Wang, & Jiang, 2008).

Research in international business and strategy has generated two undisputed insights about how foreign investors can overcome local knowledge disadvantage. First, foreign firms can create ownership advantage – home-based technology, production know-how, and management practices that can be transferred to

host markets at low cost (Buckley & Casson, 1976; Dunning, 1993; Rugman, 1981) – thereby offsetting its ‘liabilities of foreignness’ (Zaheer, 1995). Studies in this stream suggest that the MNC’s success in foreign markets is due in large measure to its capability for global knowledge transfer (Fang, Wade, Delios, & Beamish, 2013; Gupta & Govindarajan, 2000; Kogut & Zander, 1993). We define global knowledge as the knowledge which is developed in or sourced by the firm’s home base and is then made accessible to relevant populations of host-country markets. Second, local knowledge disadvantage can be reduced by the MNC through learning and transfer of local knowledge from various local knowledge sources such as host-country subsidiaries, domestic suppliers and local joint venture partners (Li, Poppo, & Zhou, 2010; Lord & Ranft, 2000; Makino & Delios, 1996; Petersen & Pedersen, 2002; Tsang, 2002).

Although these insights have been consistently supported in empirical research (Delios & Beamish, 2001; Chang, Gong, & Peng, 2012; Scott-Kennel & Giroud, 2015; Yang, Mudambi, & Meyer, 2008), there appears to be little understanding of how global knowledge may interact with local knowledge to address local knowledge disadvantage. Yet, global and local knowledge interaction has been indicated in the international business literature. By *global and local knowledge interaction*, we mean the situation or occurrence in which global and local knowledge act upon or are dependent on each other. For example, in a study of the determinants of knowledge transfers to and from newly acquired

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subsidiaries in transition economies in Europe, Yang, Mudambi and Meyer's (2008) have found that MNCs actively engage in the management of knowledge flows in multiple directions, the implication of which is that it is inevitable for global and local knowledge to come into close contact and act upon each other within these cross-border organizations. Fang et al. (2013) have observed that various knowledge resources of the parent company and its subsidiaries interact and that such interaction is often associated with a foreign subsidiary's performance. Hong and Snell's (2013, 2015) case studies of China-based Japanese multinational firms and their local suppliers have investigated the co-competition mechanisms for subsidiaries of the MNC and their domestic suppliers to jointly develop new capabilities and knowledge that meet both home-based quality standards and changing requirements of the Chinese market, thus suggesting a mutually-dependent relationship between the global knowledge of the MNC and the local knowledge of the domestic suppliers. Undoubtedly, the academic literature has offered valuable insights into global and local knowledge interaction within the MNC and beyond its certain boundaries, but as yet there has been inadequate empirical research to explore the detailed processes of local and global knowledge interaction at the micro level and their consequential nature in relation to mitigating local knowledge disadvantage.

This paper attempts to address that gap. We focus on the research question: What are the micro-processes of global and local knowledge interaction employed by MNCs to overcome local knowledge disadvantage in a transitional host economy? We present an embedded multiple case study that examined the micro-processes of how MNCs generated value from their dispersed sources of local knowledge in China. We observed how local knowledge and global knowledge interacted during the MNC's local knowledge management processes and investigated why such interactive processes reduced the MNC's local knowledge disadvantage.

2. Theoretical background

2.1. The concept of local knowledge

Local knowledge is what Johanson and Vahlne termed 'market-specific knowledge' of the host country. It ranges from explicit information to tacit and experientially-based forms of knowledge essential for foreign investors to deal with the intricacies of different cultures and socioeconomic systems (Lord & Ranft, 2000; Makino & Delios, 1996; Meyer, Mudambi, & Narula, 2011). Local knowledge may be internally generated by the MNC's subsidiaries (Lord & Ranft, 2000; Rabbiosi & Santangelo, 2013) or resides in the periphery of the MNC's local social networks (Hong, Snell, & Easterby-Smith, 2009; Tallman & Chacar, 2011). Compared to global knowledge transferred to host markets (e.g. technology and production processes) local knowledge is less codified, highly dispersed, wide-ranging, and more interdependent with its social context, and thus more difficult to capture and transfer (Li & Scullion, 2010).

2.2. Local knowledge disadvantages

In his seminal work, Hymer (1976) introduced the concept of location-based disadvantages faced by foreign investors. He noted that foreign firms would incur costs of gaining legitimacy in and acquiring market information about their host markets. Subsequent theoretical and empirical works have attempted to substantiate the concept. Zaheer (1995), for example, compared the performance of 24 locally- and foreign-owned foreign exchange trading rooms of major Western and Japanese banks

in New York and Tokyo and found that the locally-owned trading rooms did indeed outperform the foreign-owned trading rooms. She coined the term 'liability of foreignness' to explain 'the costs of doing business abroad that result in a competitive disadvantage for an MNE subunit' (1995, p. 342).

Internationalization process theorists (Inkpen & Beamish, 1997; Johanson & Vahlne, 1977) have attributed much of such liability to a lack of local knowledge of social, political and economic conditions. As Johanson and Vahlne (1977, 2009) have pointed out, the lack of understanding of the differences between countries is an important obstacle to strategic decision making and thus hinders the development of international operations. Local knowledge disadvantage faced by foreign investors often limits their abilities to succeed abroad (Lord & Ranft, 2000; Makino & Delios, 1996). In emerging markets, such difficulties are often exacerbated by the rapid pace of political and socioeconomic changes (Aulakh & Kotabe, 2008), resulting in ambiguities or a lack of transparency (Peng et al., 2008). Some researchers (Harvey, Speier, & Novicevic, 1999; Li et al., 2010) argue that the level of local knowledge disadvantage in emerging economies is higher than that in developed markets due to complex and rapidly changing political and economic conditions. Therefore, the MNC's ability to reduce local knowledge disadvantage, especially in emerging markets, eventually leads to the firm's competitive advantage.

2.3. Conventional approaches to mitigating local knowledge disadvantage

2.3.1. The global knowledge transfer approach

Internationalization has been conceptualized as a process of transferring an organization's home-based knowledge that underlies its technology or primary business activities (Buckley & Casson, 1976; Kogut & Zander, 1993). The vast majority of research on strategies for mitigating local knowledge disadvantage therefore focuses on how the MNC's home-based advantages compensate for its liabilities of foreignness (Zaheer, 1995). Studies in this research stream suggest that MNCs are superior knowledge systems that facilitate the transfer of home-based knowledge across borders (Gupta & Govindarajan, 2000). For instance, in their influential work, Kogut and Zander (1993) studied the superior efficiency of the MNC as an organizational vehicle to create and transfer home-based knowledge for its worldwide subsidiaries. This work has much to offer in its focus on global knowledge transfer. However, taking a resource-based perspective, a number of scholars argue that a firm's advantage supported by resources in its home-based country may lose its value in a host business environment and thus the location-based disadvantages that significantly affect its host country performance should not be ignored (Cuervo-Cazurra, Maloney, & Manrakhan, 2007).

2.3.2. The local knowledge learning and transfer perspective

The notion of local knowledge disadvantage has intrigued a number of authors that have viewed internationalization as a dynamic process of organizational learning in host markets (Doz, Santos, & Williamson, 2001; Johanson & Vahlne, 1977). Johanson and Vahlne (1977), for example, developed a model of the internationalization process of the firm which particularly emphasized the gradual acquisition of knowledge about foreign markets and operations. In this model, local knowledge can be gained mainly through the firm's experience in its host market. Lord and Ranft (2000) investigated the extent and determinants of internal local knowledge transfer. By analyzing over 100 divisions of diversified MNCs entering new host countries in their survey-based study, the authors found that the extent to which local

knowledge transfers across divisions occurred was significantly determined by aspects of organizational structure.

Other internationalization theorists (Inkpen & Beamish, 1997; Makino & Delios, 1996; Tsang, 2002) examined learning effects from joint ventures and international networks. Makino and Delios (1996), for instance, conducted a survey of 558 Japanese joint ventures in Asia and found that foreign firms accessed and learnt local knowledge through three channels – partnering with local firms, transference from its stock of past host country experience, and the accumulation of experience in the host country. In a similar vein, by examining 73 Singapore and 89 Hong Kong joint ventures in China, Tsang (2002) tested a model of how foreign firms acquired local knowledge from their joint venture experience.

Still several other studies have emphasized the role of high-level managers as ‘managerial ties’ and ‘boundary spanners’ that facilitate value recognition and the communication of locally created knowledge (Delios, Inkpen, & Ross, 2004; Hong & Snell, 2013; Kotabe, Jiang, & Murray, 2011; Mudambi, Piscitello, & Rabbiosi, 2014). There are also a few other studies that focus on the role of local social networks (Tallman & Chacar, 2011), power negotiation (Hong et al., 2009) and HQ incentives (Andersson et al., 2015; Andersson, Gaur, Mudambi, & Persson, 2015) as mechanisms for local knowledge communication and legitimization. Drawing on the social network theory (Granovetter, 1973; Rowley, 1997), some international business scholars have argued that ‘relational mechanisms’, particularly ‘weak ties’ (i.e. distant and frequent relationships) and ‘ambidextrous ties’ (i.e. ties that connect formal structural mechanisms and informal relationships), are conducive to the search and identification of relevant pieces of local information (Hansen, 1999; Li et al., 2010; Patriotta, Castellano, & Wright, 2013).

Research in this stream emphasizes the role of local knowledge learning and transfer in reducing local knowledge disadvantage and provides an important basis for our understanding of the important learning factors.

2.3.3. Limitations of conventional approaches

Although the literature provides much understanding about how MNCs mitigate local knowledge disadvantage by transferring either home-based knowledge or local knowledge, it has provided limited understanding of how global knowledge may interact with local knowledge to address local knowledge disadvantage. Global and local knowledge interaction has been suggested (or implied) by several international business scholars to be an important phenomenon in the MNC's knowledge transfer and combination processes (Buckley & Carter, 2004; Fang et al., 2013; Mudambi & Navarra, 2004; Yang et al., 2008). Hong and Snell (2013, 2015) have further suggested that it is also an important mechanism through which technological knowledge of the MNC and knowledge of local market conditions of its domestic suppliers are combined to develop new knowledge and capabilities. As such, we understand that global and local knowledge interaction plays an important role in the knowledge processes of the international business. However, we do not know enough about the deep processes of global and local knowledge interaction employed by MNCs to remedy local knowledge disadvantage.

Moreover, while recognizing the important role of learning and knowledge transfer in addressing local knowledge disadvantage, prior research has mainly focused on enacted or codified and thus observable and transferable knowledge, and the learning factors. Less attention has been paid to the more tacit form of knowledge which may not be readily observable and transferable (Eriksson, Johanson, Majkgard, & Deo Sharma, 1997; Lord & Ranft, 2000) or is considered to be too costly to transfer (Grant, 1996). For instance, using a case study of a cluster of dairy producers in Nicaragua, Perez-Aleman (2011) analyzed how codified forms of foreign

quality standards were diffused to less developed markets through collective learning in local networks. Petersen, Pedersen, and Lyles (2008) examined the learning factors that mitigated the foreign firm's liabilities of foreignness. Although extant literature on the knowledge-based theory (Grant, 1996), the resource-dependence theory (Pfeffer & Salancik, 1978) and the knowledge accessing theory of strategic alliances (Grant & Baden-Fuller, 2004) has advocated the utility of the knowledge integration approach towards managing difficult-to-transfer knowledge, the knowledge integration perspective has been neither empirically studied nor applied in international business studies.

Knowledge integration refers to the act of exploiting and combining individual knowledge without moving it from one carrier to another. The core ideas of knowledge integration are deeply rooted in neoclassical economics (Hayek 1945), transaction cost economics (Williamson, 1975), and behavioural theory of the firm (Cyert & March 1963). Research underlying this approach includes studies on organizational design (Kapoor & Adner, 2012), organizational systems (Van de Ven, Delbecq, & Koenig, 1976), interdependence (Bailey, Leonardi, & Chong, 2010), rules and routines (Demsetz 1991), collaborative activities (Davis & Eisenhardt, 2011), and strategic alliances (Grant & Baden-Fuller 2004). For instance, in his heavily cited article on knowledge-based theorizing, Grant (1996) proposes four main mechanisms for integrating specialized knowledge: rules and directives, sequencing, routines, and group problem solving and decision-making. Yet, there is little understanding of whether and how these ideas could be operationalized in the international business context.

Further, empirical research on strategies for addressing local knowledge disadvantage is mainly based on a quantitative approach, exploratory studies that provide opportunities for context-rich research have been inadequately undertaken (Denk et al., 2012; Johanson & Vahlne, 2009; Zaheer, 2002). Denk et al. (2012), in their recent review of 27 articles on liabilities of foreignness, find that only one article is based on a qualitative field study. They strongly recommend that scholars increase the use of inductive research approaches to explore the complex social processes associated with the concept. Zaheer (2002) and Johanson and Vahlne (2009) argue that there is a methodological imbalance in the field and suggest the use of ‘less used’ exploratory studies that have the potential to make a much-needed contribution to a deeper comprehension of the phenomenon.

2.4. The approach of this study

This study was designed to address the above deficiencies. The empirical model presented here originated during a longitudinal field research on the micro-processes of how MNCs generated value from their dispersed sources of local knowledge in China. Unlike most existing studies that solely focus on the transfer of either home-based or local knowledge, we observed how global and local knowledge interacted and investigated why their interactive processes reduced local knowledge disadvantage faced by MNCs. In addition, we were interested not just in readily transferable knowledge or factors that affect the MNC's knowledge transfer, the foci of past research, but in the MNC's attention to detailed mechanisms for managing the highly tacit, dispersed, and socially embedded local knowledge. We attempted to find out whether, and how, the knowledge integration approach (Grant, 1996) was utilized by the MNC to manage certain difficult-to-transfer local knowledge. We chose an inductive, qualitative multiple case approach to gain a more nuanced understanding of the knowledge processes that are deeply embedded in daily business behaviours in the world's largest transitional economy, an extreme context where theory building can best be examined (Eisenhardt, 1989). This is a useful approach to finding things out

particularly in China, a relationship society (Chen & Tjosvold, 2006), which significantly hinders high-quality data gathering. The employment of an embedded multiple case study methodology has led to the discovery of patterns of local-global knowledge interaction and the emergence of interactive knowledge processes used to reduce local knowledge disadvantage faced by MNCs operating in China.

3. Research methods

We conducted an in-depth study of four European MNCs operating in China, using what Yin (1984) has described as 'embedded multiple-case' approach. Multiple levels of analysis are denoted in embedded design (Yin, 1984). In our study, the units of analysis consisted of the MNC and its interactive organizations and individuals in the Chinese market because of the dispersed nature of local knowledge sources (Li & Scullion, 2006). We investigated what global and local interactive knowledge processes were used at various internal and external levels of each MNC to reduce local knowledge disadvantage. Despite being complex, this embedded design allowed richer understanding of the qualitative inquiry.

3.1. Data sources

The data were collected from multiple sources at different stages. Beginning in 2001, we conducted single-level field interviews with senior managers of 18 leading European MNCs operating in 13 sectors of China. Most participants were expatriate managers holding positions such as country president or managing director. These elite managers were chosen because: (1) as expatriate managers and key strategic decision makers in China they understood the issue of local knowledge disadvantage better than other lines of managers; and (2) they were in the right position to help us with extended access. This initial stage of the research was designed to elicit broad perceptions of local knowledge and its key sources, and to provide a cross-sectional understanding of the basic dimensions of local knowledge management processes. We paid particular attention to each MNC's local knowledge management initiatives such as planned actions and processes to deal with local knowledge disadvantage.

We then selected a subset of four successful MNCs that expressed their confidence in dealing with local knowledge disadvantages and that allowed us extensive access to multi-layers of informants over an extended period of time for further in-depth analysis. We defined successful MNCs as our respondents did, in terms of years of survival, profitability and overall business

performance. First, we selected cases that had been in China for over five years. Prior research on liabilities of foreignness (e.g. Zaheer & Mosakowski, 1997) suggests that foreign companies have a significantly lower probability of survival compared to local companies. Therefore, MNCs that have survived in the host market for a longer period of time are more likely to have reduced their local knowledge disadvantage. Second, we selected cases that had been profitable in the Chinese market in the immediately preceding three financial years (1998–2000). The initial stage respondents were asked if their businesses had a net profit in China during that period of time. Our later stage respondents confirmed their profitability levels. Third, consistent with existing studies on local knowledge and liability of foreignness (e.g. Makino & Delios, 1996; Zaheer, 1995), a perceptual measure of overall business performance was used. It was based on a managerial assessment along four dimensions – level of profitability, revenue growth, capital efficiency and business viability. We selected cases that had an above-average overall performance in their industry. While perceptual measures are not bias-free, they satisfy the requirements of reliability and validity (Ketokivi & Schroeder, 2004). Scholars (Geringer & Hébert, 1991; Makino & Delios, 1996) have found that perceptions of performance are correlated with objective financial measures.

Though we cannot claim that the chosen MNCs were successful solely because of their ability to address the local knowledge disadvantage, we focused on successful MNCs because the purpose of the study was to induct theory from cases. We adopted purposeful, rather than random, sampling (Eisenhardt, 1989) in which focal (the successful) cases were purposely selected to maximize opportunities to 'gather the most relevant data about the phenomenon under investigation' (Strauss & Corbin, 1990, p. 181). Prior studies on local knowledge and liabilities of foreignness have tested the causal relationship between the possession of local knowledge and organizational performance (Delios & Beamish, 2001; Makino & Delios, 1996; Nachum, 2010; Zaheer, 1995), which suggests that high-performing MNCs are more likely to have institutionalized local knowledge management activities and thus provide greater opportunities for us to observe the relevant phenomenon. Moreover, during our initial stage interviews with the MNCs, we enquired as to how important it had been to address local knowledge disadvantage in China. The successful MNCs all confirmed that such ability had been the key determining factor for their success in the Chinese market.

While random sampling is suited for large scale studies that test theory, the purposeful sampling approach is more suitable for in-depth qualitative research in which the focus is to understand

Table 1
Descriptions of the four MNCs studied.

MNC	M-Deli Inc	M-Nest AG	M-Equip Global	M-Electro Group
Country of origin	Germany	Sweden	Britain	Switzerland
Number of years in China	18	25	19	22
Number of companies in China	1	10	4	8
Principle industry	Food processing equipment	Telecommunications	Engineering	Electronics
Data collection methods	1 single level interview 7 multiple level interviews 1 group interview (2 participants) 7 days of field observation	1 single level interview 6 multiple level interviews 1 group interview (3 participants)	1 single level interview 5 multiple level interviews 1 group interview (3 participants)	1 single level interview 5 multiple level interviews 1 group interview (3 participants)
External local knowledge holder studied and relationship with MNC	C1—local research centre and governing body C2—local industry customer	C3—local industry customer and research partner	C4—joint venture partner	C5—project partner

complex and detailed phenomena (Eisenhardt & Graebner, 2007). Table 1 describes the four MNCs studied and their respective data collection methods.

With permission from the four selected MNCs we sought access to their key external local knowledge holders identified during our first stage onsite interviews. They included a Chinese institution and four local firms (see Table 1 for their relationships with the four MNCs studied). Twenty-three face-to-face multiple-level interviews with people of different positions – top, middle and frontline managers – from the five Chinese organizations were conducted on-site in 2001 and 2006. The intention was to undertake an in-depth exploration on Chinese perspectives of local knowledge and the social interaction processes between external knowledge holders and the MNC. This was one of the steps taken in our field study to improve accuracy and completeness (Bluhm, Harman, Lee, & Mitchell, 2011).

In order to understand how foreign managers, local Chinese staff, and external local knowledge holders interact in real business activities, we undertook field observation on business interaction process between key staff of M-Deli Inc and its external knowledge holders. We followed two major Chinese business projects participated in by M-Deli, which comprised one purchasing project of a well-known Chinese firm in the food processing sector and one bidding project for equipping a new factory of another diversified Chinese firm. This field observation was undertaken in late March 2001 in Beijing, where the initiatives of the projects were envisaged, and in May 2001 in Frankfurt, where the deals were finalized. The observation lasted 7 days in total, 4 days in Beijing and 3 days in Frankfurt. To guard against forgetting, field notes were written up at the end of each day.

Nearly 9 years after initial field research began, we visited each of the four selected MNCs once again, to share and discuss our preliminary findings with a small group of managers (a top manager and 2–3 middle managers) of each MNC and, more

importantly, to find out the measurable and immeasurable results achieved after years of implementation of their local knowledge management initiatives. We were particularly interested in finding out whether any activity or process depicted in our preliminary model was modified or discarded. The collection of retrospective data complements our real-time data collection, because it leads to better grounding and external validity (Eisenhardt, 1989). These onsite visits were conducted in 2010 in China. The interviews generated additional details which sharpened our interpretations and refined the empirical model.

The selection of multiple informants per case (10 for M-Nest, 8 for M-Equip, 9 for M-Electro, and over 10 for M-Deli) ensures data quality and mitigates bias (Eisenhardt, 1989). The interviews of different stages lasted 90 min on average, not including additional informal discussions in a few cases during lunch time. They were transcribed and coded for data analysis.

3.2. Data analysis

Following our first stage interviews with senior managers of the MNCs in 2001, we began the analysis by creating an initial narrative of each case guided by a set of general questions. The resulting initial narrative was sent to the first stage interviewees for feedback. Minor modifications were made based on their comments. The modified narrative was extended after the second stage interviews with key external local knowledge holders, the field observations, and the final stage group interviews.

We subsequently identified and coded the local knowledge management processes for each case through examining themes and their patterns to represent the ideas or concepts to be measured. Given the exploratory nature of this study, we created the codes by employing emergent terms used by informants such as 'knowledge penetration' and 'knowledge blending', rather than by preconceived theoretical concepts (Burgelman, 2011). We

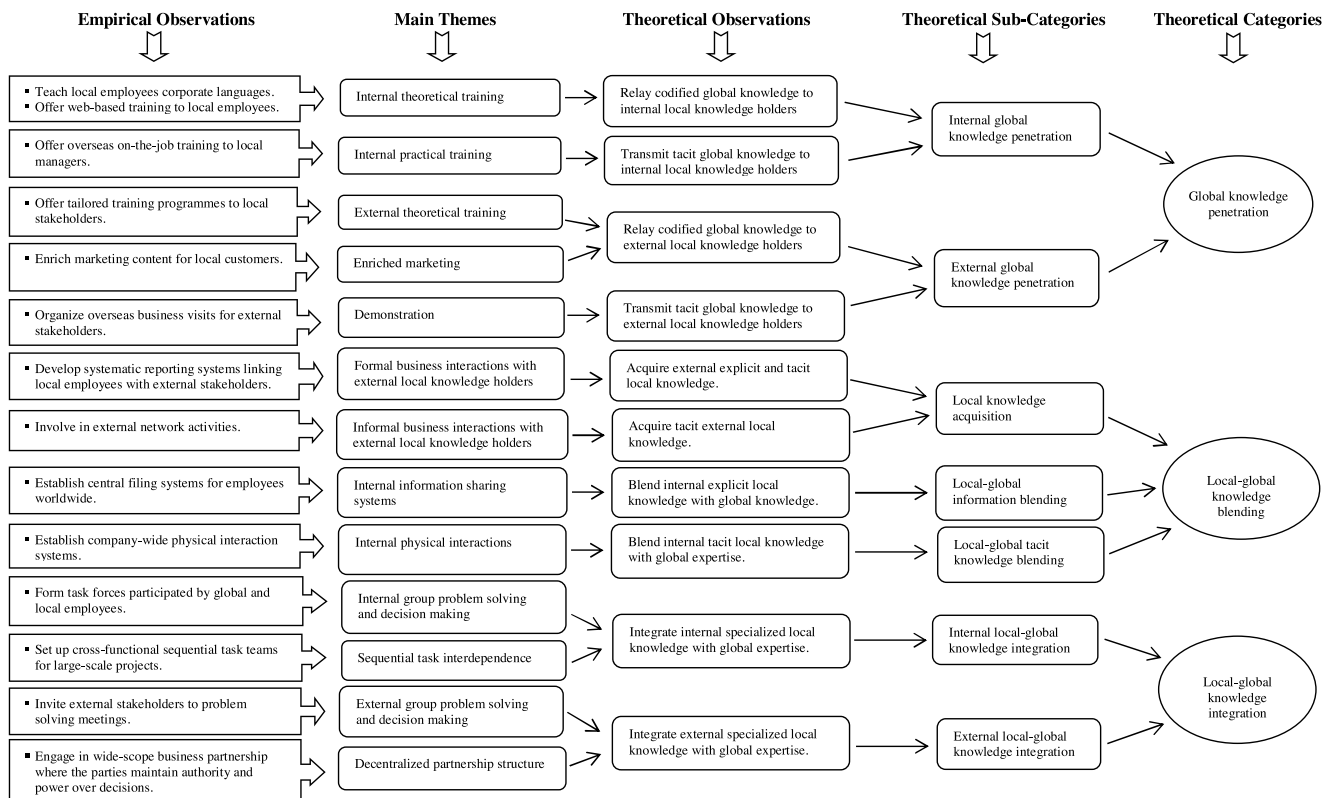


Fig. 1. Data structure.

considered each knowledge activity (empirical observation or 'first-order themes' termed by (Gioia, Corley & Hamilton, 2013) to have occurred when it was repeatedly mentioned by independent informants of both foreign and Chinese sides.

This data analytic strategy is similar to 'grounded theory' coding (Glaser & Strauss, 1967), which allows theoretical ideas to emerge from the field in the course of the study using loosely structured research designs (Bluhm et al., 2011). The value of this approach rests on its relatively more objective use of empirical data because it does not require data to fit into the preconceived standardized codes used by quantitative and some qualitative research.

The coded themes and patterns for each case were then placed in a comparative Table for cross-case analysis (Eisenhardt, 1989). We looked for the emergence of similar themes and patterns across the four cases with the aim of identifying second-order themes (Gioia et al., 2013) or theoretical observations (van Burg, Berends, & van Raaij, 2014) and forming tentative theoretical constructs (Eisenhardt, 1989). During the process we needed to revisit our original data from time to time to compare the theoretical constructs and data and to verify the occurrence of specific themes. We paid special attention to the differences and sought further clarifications from the four MNCs. The extended discussions inhibited any inclinations towards overidentification with interpretations influenced by theoretical preconceptions (van Burg et al., 2014).

Tentative thematic categories were developed by linking related subthemes in the comparative Table and critiqued by a panel of peers over a three-day researchers' retreat, during which time minor modifications were made based on the peer feedback. An interactive process model emerged following our systematic data analysis and verification. Fig. 1 depicts how we moved from certain key empirical observations toward a conceptual understanding of the original data.

4. Interactive knowledge processes

The literature on strategies for overcoming local knowledge disadvantage generally focuses on the transfer of either home-based or local knowledge. The data in our study, however, confirm that global knowledge and local knowledge interact. We found that MNCs employed interactive knowledge processes encompassing three strategically interconnected modes – global knowledge penetration, local-global knowledge blending, and local-global knowledge integration (see Fig. 2). *Global knowledge penetration* refers to the mode deployed by the MNC to transfer home-based knowledge to dispersed local knowledge holders in its host markets. Our data suggest that a foundation of global knowledge is pre-requisite to the effective utilization of local knowledge. The purpose for global knowledge penetration was to develop a common language, an interface, for local knowledge communication and utilization. This mode was closely followed by *local-global knowledge blending*, the mode by which transferable local knowledge (i.e. explicit local information and transferable tacit local know-how) was constantly acquired and blended with global knowledge to expand the corporate common knowledge base for rational analysis. Meanwhile, *local-global knowledge integration*, the mode by which non-transferable local knowledge was integrated with global knowledge, was employed to fulfil large-scale or complex tasks. These interactive processes highlight the interplay between global and local knowledge. The effective and efficient mitigation of local knowledge disadvantage is dependent upon the continual orchestration of local and global knowledge interaction. Table 2 summarizes the main characteristics of each mode. In the following subsections, we elaborate each of the modes.

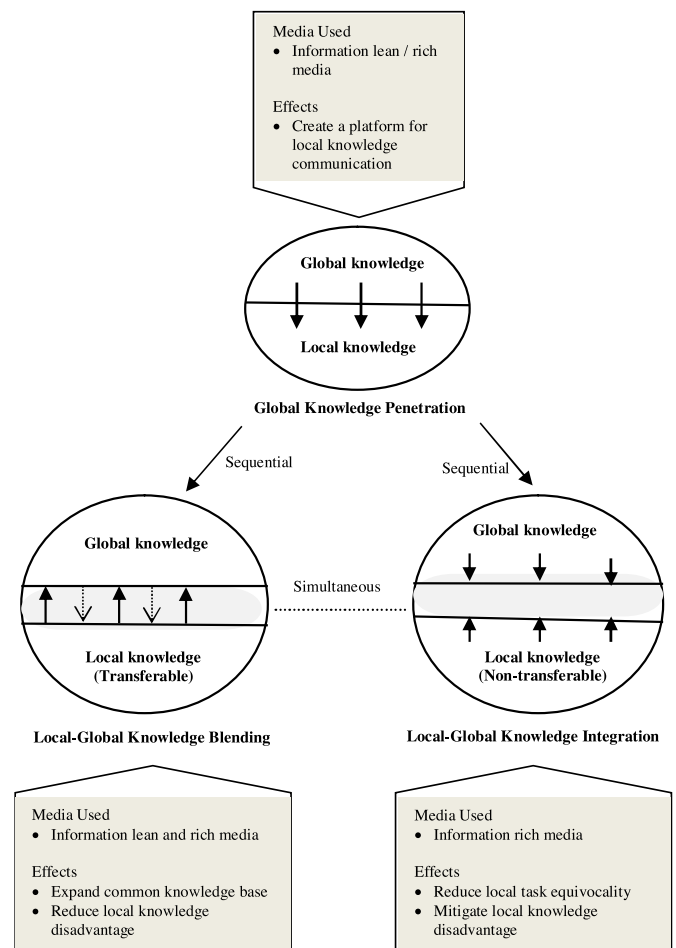


Fig. 2. Interactive knowledge processes.

4.1. Global knowledge penetration

Our data show that local knowledge cannot be effectively utilized without the transfer of global knowledge. When asked how they tapped into the power of local knowledge, a senior vice president of M-Electro surprisingly replied, 'Initially, we couldn't because there was a gulf between us'. By *gulf* he meant a huge knowledge gap between foreign staff and local Chinese which restricted mutual communication. During our field work, both foreign and Chinese informants pointed out that the knowledge bases of local Chinese and foreign staff, and the ways how they interacted with others, differed significantly, making communication and cooperation extremely difficult. Therefore, whether local knowledge could be utilized at all was largely determined by the MNC's capability to overcome this communication barrier.

We found that two key global knowledge penetration mechanisms were instituted internally to develop a common knowledge base between foreign staff and local employees. Theoretical training to local employees was cited by managers in the interviews as one of the most effective means of global knowledge penetration. It occurred at various levels of the business in a variety of forms. At M-Electro, for example, training programmes were organized annually. The content of these programmes included general knowledge associated to the basic business knowledge of employees and specialized knowledge that had been codified and stored in operational manuals, blueprints, written rules, index systems, and so on. The communication media used with internal theoretical training mainly included instructional lectures, pre-recorded video tapes, written guides and handbooks, and web-

Table 2
Main characteristics of interactive modes.

Interactive mode	Function	Direction of knowledge movement	Type of knowledge utilized	Type of tasks applied	Time of application
Global knowledge penetration	Creating a platform for local knowledge communication	One way: global → local	Global knowledge	All types of projects	Mostly at early stage of foreign market entry
Local-global knowledge blending	Expanding corporate common knowledge base	Two ways: local → global global → local	Transferable local knowledge and global knowledge	Small-scale projects or decisions that require general and articulated knowledge	After global knowledge penetration
Local-global knowledge integration	Exploiting the full value of local knowledge	None But local knowledge and global knowledge are interdependent	Non-transferable local knowledge and global knowledge	Large-scale projects or complex decisions that require diverse specialized knowledge	After global knowledge penetration but very often applied simultaneously with local-global knowledge blending

based virtual learning. The R&D department of M-Electro, for instance, had web-based virtual learning of technical terms and classification of technologies and products for local technicians 'to aid (their) communication with global R&D specialists', according to the MNC's local product manager. These communication methods required limited direct personal contact and mainly involved one-way communication, therefore, were perceived to be information-lean media that were appropriate for relaying codified forms of global knowledge (Daft & Lengel, 1986).

A second means for internal global knowledge penetration employed by MNCs is practical training. Consistent with prior research (e.g. Hong et al., 2009), practical training is one of the main mechanisms for inter- or intra-organizational knowledge transfer. All four MNCs examined in this study influenced local knowledge holders' knowledge base at large through early stage daily business activities. During this process, local employees had on-the-job training in the host market with a foreign manager as a supervisor onsite for a few months. Local staff learnt through business interactions with foreign staff and internal document communication. Practical training for local staff, especially for local managers, was also undertaken at the MNC's overseas locations. For instance, over 600 Chinese at all levels of M-Nest were trained in the mother company. Most of the practical training programmes ranged from a few weeks' short-term visit to one year's on-the-job practical learning. Practical training requires face-to-face interaction, rapid feedback and the ability to convey meaning and understanding through two-way communication (Polanyi, 1997), therefore, is an information-rich medium suitable for transmitting tacit forms of global knowledge (Rice, 1992).

At the external level, various actions were taken by MNCs to penetrate global knowledge to dispersed local knowledge holders. One unique strategy deployed was to offer tailored theoretical training programmes to external local knowledge holders. Both long-term and short-term training programmes were organized to build up external local knowledge holders' global knowledge base. For example, M-Nest chose to undertake specific training of local customers through its academy worldwide. Young talents working for its industry customers were also selected to attend its tailored MBA programmes, which was considered a way of 'globalizing local customers' by the human resource manager of C3. M-Equip regularly ran seminars on various aspects of the business for local distributors and government officials. Although the seminars involved face-to-face interaction, this type of interaction was not personal and thus only facilitated the development of weak ties appropriate for relaying global information rather than tacit forms of know-how (Eapen, 2012; Hansen, 1999).

A second commonly employed method for external knowledge penetration was demonstration. Key external local knowledge holders such as local authorities and local industry customers

were regularly invited to overseas companies or international conferences and fairs. Since the invited visits of external local knowledge holders were accompanied by the MNC's trained Chinese managers who served as boundary spanners, the observed business practices were verbally explained to and discussed with the observers. On-site demonstration, therefore, did not just allow for up-close observation of global practices but also offered the opportunity for face-to-face interaction and immediate feedback, hence this mechanism facilitated dissemination of tacit forms of global knowledge (Murray & Peyrefitte, 2007).

A third mechanism for penetrating global knowledge to external local knowledge holders, and local customers in particular, was through 'enriched marketing' where a significantly higher than normal level of company and product information was integrated into the content. Marketing strategies adopted by MNCs in China pinpointed the role of global knowledge penetration or 'education', termed by the CEO of M-Deli. Although information-based marketing media are often considered lean information promulgation channel, they are efficient and effective mechanisms for disseminating codified global knowledge to a large population of potential customers (Belch, Belch, Kerr, & Powell, 2008). Global knowledge penetration via company products, press and media to local customers significantly influenced local perceptions, as the managing director of M-Equip remarked:

In Europe as well as the US, only about 3–5% of our budget is spent on marketing but here in China it is about 25%. People in your distribution chain have to understand you and your products before you know their expectations. The cost in China is not low.

Global knowledge penetration activities generally took place at the early stage of the MNC's foreign market entry and prior to the utilization of local knowledge. The learning and communication literature (Lyles & Salk, 1996; Petersen, Pedersen, & Lyles, 2008) highlights the point that shared language is related to the organization's ability in understanding new knowledge, termed 'absorptive capacity' in Cohen and Levinthal's (1990) seminal work. By infiltrating global knowledge to dispersed local knowledge holders in China, MNCs created a shared language for local knowledge communication. Local knowledge holders were able to associate their words and behaviour with culturally familiar symbols of home country managers making a piece of information meaningful to their foreign audiences. For example, at M-Electro, local staff were trained to use a list of vocabulary termed 'M-Electro key concepts' in their 'lines-of-communication network' so that local information collected through its central filing system could be easily understood by employees worldwide. Global knowledge penetration established the foundation and interface for local-global knowledge blending and local-global knowledge integration illustrated below.

4.2. Local-global knowledge blending

Global knowledge penetration was closely followed by the MNC's second strategic effort – wide scope local-global knowledge blending processes characterized by intensive interactions between local knowledge seekers and local knowledge holders. At this phase certain transferable local knowledge was acquired from external local knowledge holders and blended with global knowledge to expand the corporate common knowledge base for rational analysis. This was possible owing to the MNC's earlier effort to establish a common knowledge base, an interface, for local knowledge communication. Although a two-way knowledge flow (i.e. local to global; global to local) was observed, the flow of local knowledge to global knowledge domain tended to dominate at this stage.

4.2.1. Local knowledge acquisition

Both the interview and field observation data suggest that MNCs acquired local knowledge from external knowledge holders through formal business interactions and informal networked activities. On the one hand, they paved ways to formally access external local knowledge holders such as local customers and local authorities. Direct intimate interactions with external local knowledge holders allowed a particular group of participants to meet and exchange views face-to-face over an extended period of time, hence this mechanism was considered high in media richness and thus facilitated the establishment of shared goals and mutual trust which are conducive to the acquisition of both objective and subjective local information (Inkpen & Tsang, 2005; Raab, Ambos, & Tallman, 2014). A good example of such effort is M-Nest's 'multi-layered technology communication system' that links itself with its customer-related local knowledge holders. In this system, its technical sales force directly joined the end-users' projects and worked together with local designers, institutes, contractors, subcontractors and other service companies in conjunction with its distributors. This communication system was aided by the global knowledge penetration mechanisms described earlier. Through this wide scope technical co-operation with, and support to, its customer-related knowledge holders, its sales network gained the necessary trust that eased communication among all involved and was able to 'effectively report back key facts on each local project to its networked database', according to one of its local general managers. Local customer knowledge was constantly acquired through this onsite communication system.

On the other hand, informal networked activities, often labelled as 'relational mechanisms' (Li et al., 2010) in the social network theory, were organized intensively ranging from dining with local customers to meeting with central government officials. These activities involved intensive face-to-face interaction between certain members of the MNC and key individuals of external local knowledge holders, therefore, were considered significantly high in media richness, allowing participants to exchange complex knowledge and to seek clarification (Eapen, 2012; Hansen, 1999). They were undertaken not only for the purpose of acquiring certain tacit knowledge but also the explicit local knowledge. Consistent with prior studies (Li & Scullion, 2010; Li et al., 2010), these MNCs found local knowledge in the Chinese market to be undiffused and fast-evolving and thus realized that they had to build strong social relationships with external knowledge holders in order to get relatively correct and well-interpreted local knowledge, as a general manager of M-Equip illustrated:

I know it is important to maintain relationships with external bodies, associations or bureaus that have impacts on our business. I need to maintain relationships to gain information I require. We choose to make frequent contact with them because they can offer services. . . . What can be done without good relationship with them? Who can interpret the internal documents?

4.2.2. Local-global information blending

With the aim to blend the acquired local knowledge with global knowledge and to expand the corporate common information base, the MNCs widely employed built-in knowledge dissemination systems such as central filing system, databanks etc. In these systems, local knowledge was codified and diffused to its corporate database for wider public use. Technology-assisted information systems are considered lean media because they are impersonal and non-interactive (Daft & Lengel, 1986). Yet, they are efficient devices for relaying codified forms of local knowledge to global knowledge base to assist rational and just-in-time decision making and thus reduce uncertainty caused by a lack of local market information (Makino & Delios, 1996). This information blending mechanism, therefore, serves to mitigate the MNC's local knowledge disadvantage.

4.2.3. Local-global tacit knowledge blending

Information sharing systems were only useful common structures for the MNC to expand its corporate base of explicit knowledge. The MNCs depended on physical interactions to blend certain tacit local knowledge (e.g. the implied meaning of a local policy) into corporate-level understanding. Business activities such as regular meetings, instant meetings, and informal social activities that connect knowledge sources and knowledge recipients allowed for the establishment of 'strong ties' (Hansen, 1999), and were all repeatedly mentioned as examples of rich media and evidence of physical communication within the MNC. These activities were organized on a daily basis in each business unit and regularly organized across business units or across borders (e.g. worldwide human resource directors' meeting). The meetings in this interactive mode, however, were normally short. Instant meetings we field observed, for example, often lasted for just about ten minutes. The regular meetings were all arranged to finish within a tight time-limit. For instance, M-Deli had a morning 'huddle up' on a daily basis for just about fifteen minutes and their weekly meeting for about thirty minutes. At M-Nest, each human resource manager was allotted fifteen to twenty minutes for his or her briefing during their annual worldwide human resource managers meetings. The field observation data reveal that instant meetings were key methods used to blend emerging local insights with global perspectives.

According to our respondents, the employment of knowledge blending processes helped these MNCs improve corporate responsiveness, make effective business decisions, and generate innovative ideas, as in this excerpt from an interview with the Asia area manager of M-Deli:

Based on such knowledge (local knowledge) we adjusted our marketing methods, including selling our collagen casings in printed version. With this idea we were able to gain entry to major customers in China. This is not possible in Germany and other European markets. . . . We would not achieve what we have been achieving without such understanding.

However, a key feature of the local-global knowledge blending process, is its focus on local knowledge that is 'transferable' within a reasonable time period. Despite of the great attention paid to global knowledge penetration, the MNCs found that there were still difficult challenges in attempting to transfer all types of local knowledge because: (1) certain types of local knowledge were highly specialized and difficult to access, (2) local knowledge evolved fast but learning took time, and (3) transferring local knowledge required considerable resources that the MNC might not possess. As a result, certain local knowledge, especially 'specialist knowledge' (e.g. local business negotiation skills) was generally utilized through the local-global knowledge integration approach which we explain next.

4.3. Local-global knowledge integration

Our data show that certain local knowledge, especially 'specialist knowledge' (e.g. the synthetic skills of a local market analyst), was often integrated with global knowledge to fulfil large scale or complex business tasks. This knowledge integration approach, explicitly mentioned by Grant (1996), was adopted to deal with the inherent challenges of local-global knowledge blending and to utilize the difficult-to-transfer types of local knowledge. It did not require the movement of local specialist knowledge from knowledge holders to knowledge seekers but combined complementary global and local capabilities to realize business opportunities. Therefore, the mode of local-global knowledge integration indicates an interdependent relationship between local and global knowledge.

Consistent with existing studies on knowledge integration (e.g. Grant, 1996), effective local-global knowledge integration required sufficient common knowledge developed through global knowledge penetration. Internally, this method was often adopted simultaneously with the local-global knowledge blending approach benefiting from an expanding common knowledge base. Local-global knowledge integration was generally realized through mechanisms of group problem solving and decision-making and sequential task interdependence. Externally, the MNCs also widely formed strategic alliances with external local knowledge holders to utilize local expertise that otherwise could not have been used in an efficient way. 'Decentralized partnership' was adopted as a key integration mechanism for managing external specialized local knowledge.

4.3.1. Group problem solving and decision making

Group problem solving and decision-making, a high-interaction group coordination mode (Daft & Lengel, 1986), facilitates the integration of highly tacit forms of knowledge required to carry out complex and uncertain tasks (Perrow, 1967) such as non-routine problems (Tippmann, Sharkey, & Mangematin, 2012) or novel situations (Carlile & Rebentisch, 2003). This communication-intensive mode of integration often takes the form of meetings (Galbraith, 1973) that took place within or outside the MNC. According to our informants, the purpose of most corporate business meetings, whether regular (e.g. the board meetings of the MNCs that took place in China regularly) or irregular, was twofold: one was to share up-to-date articulable local business knowledge and the other was to integrate difficult-to-share local expertise into corporate business decisions. The participants of problem-solving meetings were often a small group of people involved in or related to a particular project or a complex strategic issue. Local staff were involved not only in frontline business decisions but in corporate-wide business planning and problem-solving as well. Group decision-making offers the opportunity for different perspectives to emerge leading to group decisions that consider the full alternatives (Grant, 1996), as the general manager of M-Deli illustrated:

We spent hours discussing the problem (disagreement between the parties of M-Deli's project in Shanghai). They (international managers) wanted to draw clear lines between the parties involved and put everything on paper but some Chinese managers disagreed. ... managing business relations in China is not science but an art. ... we had a further discussion. Rober (the CEO of M-Deli China) insisted on using our standard format (of legal contracts) and following the main principles. Others made various suggestions. ... We replaced some specific clauses with more general clauses ... and suggested Rober to verbally agree with the management involvement of other parties. We had further discussions and made more changes. ... difficult at times but they were open-minded. ... compromised solution based on a

working principle ... the need to embed the logic of guanxi (relationship) or mianzi (face) in our broad legal framework.

Group decision-making embedded individual specialized local knowledge into collective business actions and combined local and global capabilities to achieve superior business performance, as the CFO of M-Nest explained:

We have a high proportion of local managers in our top management team. They play an important role in our business decision-making process. We also have international competence influencing into how business is done in China. I think the combination is important and I believe you should not take anyone away or simply tie them together. The right combination is part of the success. ... experienced local managers in every level of management, five at the top ... more than international managers. ... We also have Innovation Cells (a business innovation initiative) deployed to facilitate location and relocation of cross-functional team members.

Moreover, external local knowledge holders were also invited to contribute to these MNCs' business decision-making processes. We observed the involvement of a small number of participants from local research institutions, local customers, and even local individuals, named as 'strategic groups' by the president of M-Deli's industry customer (C2) in China, in decision-making of highly complex business projects.

Group problem solving and decision making involved lengthy, intensive group discussion and debate, through which local and global participants drew on their own highly tacit domain-specific knowledge to identify what specific expertise or know-how could potentially be applied to a complex local task or problem that contains a host of undefinable context-specific variables. The participants normally developed 'boundary objects' (Carlile, 2002) such as the 'working principle' at M-Deli that provided 'common frames of reference', based on which an appropriate solution (e.g. the 'compromised solution' at M-Deli) was enacted (Carlile & Rebentisch, 2003; Weick, 1979). This group problem solving mechanism, therefore, overcame local and global differences and reduced equivocality of complex tasks (Daft & Lengel, 1986). Although requiring rich communication media such as lengthy, intensive and irregular face-to-face meetings, this method was not pursued as a device for collecting more local knowledge for rational analysis. Rather, it had the capacity to reach a collective and better judgement, thereby addressing local knowledge disadvantage.

4.3.2. Sequential task interdependence

The interdependence theory suggests that sequential task interdependence where different parts of the task are performed successfully in a prescribed order is a useful device for integrating specialized knowledge of task team or group members (Saavedra, Earley, & Dyne, 1993). Under sequential task interdependence, task team members have different roles and their value activities are coordinated by co-operative planning (Thompson, 1967). Our evidence shows that multi-level task teams were often set up to integrate global knowledge with specialized local knowledge that could not be learnt by other team members within a reasonable time period. These teams were often purposefully organized at different levels of the business where members of the team conducted their value activities in a prescribed order. Such sequential activities served as coordinating devices for managing large-scale tasks that required diverse specialized knowledge. The local business development manager of M-Equip illustrated how a business-wide cross-functional task team functioned through sequential interdependence:

We perform different parts of a task based on a detailed and fully discussed task plan posted onto the task board which we closely monitor. We have a day-to-day progress chart. ... Our department

(Business Development) is responsible for liaison with clients, making bidding policy and searching local partners. We need to, for example, cooperate with a local engineering institute and a construction company to bid a project. We do the initial work. We also have Engineering Department, Purchasing Department and other project management departments. These departments form a task force or a team to cooperate with us to do the bidding. We get the contract and then we leave the main task to operational departments. . . . After that we'll work on new projects.

Sequential task interdependence required structural mechanisms such as task forces, project teams and liaison roles that involved the use of rich communication media such as frequent face-to-face planning meetings to resolve interdepartmental differences resulted from functional specialization and diverse frames of reference. During the meetings, participants engaged in intensive discussion and negotiation which enabled mutual adjustment and reduced equivocality of large-scale tasks (Daft & Lengel, 1986), thereby avoiding inappropriate actions resulted from local knowledge disadvantage. Yet, because different parts of the task were performed by teams from different specialties at different times, such an arrangement was not made to facilitate more knowledge flow. Rather, it was designed to integrate diverse specialties.

4.3.3. Decentralized partnership structure

Local knowledge held by external knowledge holders such as local JV partners, research institutions and other strategic alliances was perceived to be more difficult to acquire and harness, as a vice president of M-Nest pointed out, 'The partners do have specific knowledge and competence which would take us a long time to acquire'. Partnership was therefore considered to be the most appropriate approach towards accessing and utilizing external local expertise essential for large-scale or complex Chinese projects. Both resource-dependence theory (Pfeffer & Salancik, 1978) and the knowledge accessing theory of strategic alliances (Grant & Baden-Fuller, 2004) provide support for the role of partnership structure in integrating specialized knowledge. We found that MNCs needed to weigh their global knowledge against the demands of the complex task and then bring the appropriate form of local knowledge of their strategic partners to bear on that task. Within the partnership structure we observed, however, the parties maintained autonomy and power over decisions that required domain-specific expertise. Such decentralized partnership structure accessed and utilized the complementary capabilities of local and international organizations. A local senior manager of corporate communications at M-Electro explained the rationale for their partnership arrangements:

A company's knowledge is always limited. To win a contract like the (name omitted) Project, the biggest project in the world, required collaborating with many specialized companies. It was impossible to acquire all local knowledge we needed in a market like China.

Yet decentralized partnership structure used intensive face-to-face liaison devices, rich media, to resolve differences between partners. The use of boundary spanners, e.g. communications managers, whose role included the discussion and interpretation of issues or actions, the establishment of common frames of reference, disagreement resolution and equivocality reduction was observed in all four MNCs studied.

5. Discussion and conclusions

5.1. Contributions

Our conceptualization of local-global interactive knowledge processes contributes to extant research in several aspects. First,

the model emerging from our findings highlights the interplay between global and local knowledge, a micro-level phenomenon largely overlooked in conventional theories of internationalization process. Conventional models solely focused on either the transfer of home-based knowledge (Kogut & Zander, 1993; Lyles & Salk, 1996) or the learning and transfer of local knowledge (Lord & Ranft, 2000; Makino & Delios, 1996; Tsang, 2002) assuming that local knowledge disadvantage can be mitigated either way. Our empirical data, however, suggest that local knowledge cannot be effectively utilized without the transfer of global knowledge and that the transfer of global knowledge alone cannot fully offset local knowledge disadvantage. Local knowledge and global knowledge interact and therefore the effective and efficient mitigation of local knowledge disadvantage is dependent upon the continual orchestration of local and global knowledge interaction. These findings further suggest that global and local knowledge should not be dealt with separately.

Second, the conceptual model emerging from our findings suggests that knowledge transfer, which is unduly emphasized in extant research on strategies for mitigating the local knowledge disadvantage, is not always an optimal choice of exploiting local knowledge because that certain types of local knowledge are highly tacit and specialized hence of low transferability and that transferring local knowledge required considerable resources that the MNC might not possess; to realize the full value of local knowledge, both knowledge transfer and knowledge integration approaches could be employed. While providing an alternative strategy for mitigating local knowledge disadvantage faced by foreign investors, these findings confirmed the limitations of the organizational learning approach to strategy which implicitly assumes that all types of knowledge can be learnt, and better addressed the issue of transferability of local knowledge. The empirical model suggested the complementary use of both knowledge transfer and knowledge integration approaches and thus shed some light on the knowledge integration mechanisms (e.g. Grant, 1996) previously less illuminated in research on mitigating local knowledge disadvantage. It also provided insights into the central enquiry of Eisenhardt and Santos (2002) who asked, 'is intensive knowledge transfer strategically wise?' According to these researchers, clarification of this issue is critical to merge the knowledge-based view into the wider field of strategy.

Third, our findings uncover the micro-processes of local knowledge management which are unclear in conventional theories of local knowledge. Instead of solely focusing on learning effects and determinants of local knowledge transfer within the MNC or from external knowledge holders, this study first explores the detailed knowledge transmission and integration mechanisms deployed in the world's largest emerging market. The findings have brought to light numerous concrete strategies for exploiting the MNC's internal and external local knowledge sources. This has been realized by the employment of a qualitative multiple-case approach, as against quantitative methods widely adopted in previous studies on local knowledge management (Denk et al., 2012; Johanson & Vahlne, 2009; Zaheer, 2002). The use of a qualitative approach allows the difficult-to-articulate 'soft' local knowledge management issues, which are embedded in human interactions and perspectives, to be closely observed and examined. A novel feature of this research is the incorporation of both foreign views and local perspectives by interviewing managers from MNCs and managers of their interactive Chinese organizations, as well as the use of direct observation on interaction process involved by both sides. It promotes the discovery of the most difficult-to-explain and sensitive strategic issues in the international setting.

5.2. Managerial relevance

Our research has practical implications for MNCs operating in transitional economies. The results suggest that foreign investors need to refocus their attention on the development of strategically interconnected mechanisms that facilitate the continual orchestration of local and global knowledge interaction. To this end, the employment of mechanisms for transferring global knowledge to local knowledge holders should be closely followed by organizational efforts to acquire and disseminate local knowledge to the global domain, facilitating effective decision making.

Meanwhile, it is vital to understand that local knowledge in emerging economies like China is neither fully transferable nor widely available. Reliance solely on mechanisms for acquiring and transmitting local knowledge risks neglecting the highly tacit forms of local expertise. Managers of foreign investors need to pursue mechanisms that integrate highly tacit local expertise with global knowledge in order to utilize this critical proportion of local knowledge. Also, they need to be aware of the dispersed nature of local knowledge. Hiring local hands is a necessary yet not sufficient approach towards integrating local knowledge with global knowledge. Wide-scope business collaborations and intensive network building with a variety of local organizations and individuals are also essential.

Yet, establishing and successfully implementing a local-global knowledge interactive system demands elaborate planning and full commitment at all levels. Foreign investors need to find out what facilitates local knowledge flow and utilization, and what hinders them so that they can create the enabling conditions. Although empirical examinations of the context-specific enablers and barriers are beyond the scope of this paper, establishing managerial ties (Kotabe et al., 2011) and ambidextrous ties (Patriotta, Castellano, & Wright, 2013) and defining legitimate means such as power negotiation to motivate local knowledge holders (Hong & Snell, 2015) may be critical factors in developing an effective local-global interactive knowledge system. Foreign investors need to bear in mind that only those that pursue appropriate mechanisms for mitigating local knowledge disadvantage and make investments to support their implementation may achieve a competitive advantage.

5.3. Limitations and future research

Although our empirical model complements and extends prior understanding of how MNCs mitigate local knowledge disadvantage, and to some degree enriched the existing literature, our study is limited in at least two respects. Evidence from this study shows that the data gathered from a small number of cases which were not randomly selected in a single country, two or three meetings with most managers involved, and just seven days' field observation on business interaction process participated by a single MNC, are still limited. Most managers interviewed held that they would have provided more insights into related issues if there had been more time for research meetings. A study in greater depth would allow greater understanding of the associated issues such as the implementation problems that local knowledge management initiatives might encounter. One such potential problem revealed from our field study is that MNCs often face difficulties in valuing knowledge contributed by knowledge holders, hence, resulting in confusion when designing internal appraisal systems and negotiating external relations. Another potential problem is that MNCs often find it difficult to quantify the actual time and resources spent on each of the interactive processes and thus cannot gauge whether the measures they take at each stage are sufficient. If future research could develop an approach to quantifying and assessing the implementation process of knowledge management

strategies, which was also identified as a gap in existing literature (Foss & Pedersen, 2004), MNCs would then have better tools to implement these local-global knowledge processes.

Secondly, it is important to note that this research is not to make inferences to the total population of MNCs but to bring about a rich understanding of the local-global knowledge interaction processes used to reduce local knowledge disadvantage faced by MNCs that have and purposefully overcome such liability in institutionally more distant transitional economies. For the purpose of the study, we adopted purposeful sampling in which four successful cases were purposely selected to maximize opportunities to gather the most relevant data (Eisenhardt, 1989; Strauss & Corbin, 1990). Future research could extend the empirical base to include more MNCs with a variety of backgrounds, particularly in other emerging markets, to provide a firmer ground for our interactive model. We hope that our findings and conclusions will encourage additional qualitative studies of local knowledge management in wider business settings that exemplify the interactive nature of the micro-processes of how MNCs generate value from local knowledge.

In sum, this qualitative study is the first attempt to study extensively the deep processes involved in identifying and capitalizing on local knowledge in an emerging market. We attempted to inform the literature on international business and strategy by developing theory that helps to advance understanding of how local knowledge disadvantage faced by foreign investors can be mitigated.

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